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CONTENTS.

	Page
Anæsthesia. By A. L. FLEMMING, M.B., B.Ch.	1
The Recommendations of the Royal Commission on Lunacy and Mental Disorder. By J. V. BLACHFORD, C.B.E., M.D.	15
The Central Nervous System in Addisonian Anæmia. By GEOFFREY HADFIELD, M.D., M.R.C.P. Lond.	21
Observations on Pellagra. By E. BARTON WHITE, M.R.C.S. Eng., L.R.C.P. Lond., and GEOFFREY HADFIELD, M.D., M.R.C.P. Lond.	31
Some Clinical Aspects of Sterility. By R. S. S. STATHAM, O.B.E., M.D., Ch.M.	41
Reviews of Books	49
Editorial Notes	57
Meetings of Societies	59
Obituary: SIR ISAMBARD OWEN, M.D., D.C.L., LL.D., F.R.C.P.	61
The Medical Library of the University of Bristol	62
Local Medical Notes	64

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The Bristol Medico-Chirurgical Journal

" *Scire est nescire, nisi id me*
Scire alius sciret."

SPRING, 1927.

ANÆSTHESIA.

Presidential Address, delivered on 13th October, 1926, at the opening of the fifty-fourth Session of the Bristol Medico-Chirurgical Society.

BY

A. L. FLEMMING, M.B., B.Ch.,

Hon. Anæsthetist, Bristol Royal Infirmary; Lecturer in Anæsthetics, University of Bristol.

WHEN nominated as President-elect of this Society I naturally felt diffidence in undertaking so responsible a post, especially as at that time the highest traditions of the office were being maintained by Mr. Carwardine with such inimitable ability; but two irresistible forces compelled me to accept the honour so generously proffered; one was the personal gratification inseparable from such promotion, the other was a conviction that by accepting the invitation I should be acknowledging a great compliment paid by you to that particular branch of medical practice in which I happen to be especially interested.

It seems peculiarly opportune that the day of this meeting should almost coincide with the 80th anniversary of that epoch-making occasion which Weir Mitchell[1] once referred to as "the hour when one eager brain, with Godlike will, decreed the death of pain."

On the 30th September, 1846, in his own office in Boston, and a few days later in the Massachusetts hospital, Morton successfully anæsthetised with ether two patients, and, by so doing, had solved, with dramatic suddenness, a problem which had occupied men's minds for thousands of years.

Within three months of this discovery in America, the new method was established in London, and in a short time it had spread from this centre to many of the countries in Europe; indeed, it was inevitable that an invention of this significance should be welcomed with the utmost enthusiasm in view of the terrifying conditions hitherto prevailing in the operating theatre.

We learn from the writings of Dioscorides[2] that, as long ago as the early part of the first century of the Christian era, it was the practice of some surgeons to administer soothing potions to their patients before operation, and we have no reason to think that in former days mankind was devoid of a sense of mercy, for we read that amongst some people, as the Chinese and the Jews, it was customary to give narcotic drugs to criminals before they were executed.

The drugs commonly used in surgery were mandragora, cannabis indica, hellebore, and poppy, and there can be no doubt but that the drowsiness which these produced rendered the patient more amenable to the process of being securely tied to the operating table, or of being held down by stalwart assistants; but there is abundance of evidence to

show that this sleep was only too quickly dispelled by the first stroke of the surgeon's knife, and the scenes of struggling and screaming and superhuman bravery which followed were, according to many authorities, so harassing that everybody in the operating room would be overcome with emotion; even such a vivid description of a major operation upon a conscious patient as occurs in Dr. Brown's classical *Rab and his Friends*[3] when the wife of James Noble was operated on for tumour of the breast can but imperfectly convey to us, who have never witnessed such events, an idea of the conditions which handicapped the surgeon in his work in those pre-anæsthetic days.

The introduction of ether anæsthesia, destined to abolish such scenes as the above for ever, was the outcome of co-operation between scientist and clinician; it was Jackson, a scientific chemist, who suggested ether to Morton as a drug which he knew to be capable of producing unconsciousness; but it was for Morton, the dentist, to prove to the world that this state of oblivion could be maintained during surgical procedures which would otherwise be painful; furthermore, it is no exaggeration to say that every advance that has subsequently taken place in the art of anæsthesia has been based upon the results of experiments and investigations conducted by scientific workers.

Anæsthesia, as a matter of fact, has been especially fortunate in the large number of authorities in various branches of science who have contributed toward her development. And Bristolians may well be proud to remember that it was in Dr. Beddoes' Pneumatic Institute, in Dowry Square, that the very foundation stone of inhalation anæsthesia was laid by[4] Humphry Davy through his research on the properties of nitrous

oxide gas. His experiments on animals were so complete and precise that he was able to show exactly what proportion of oxygen must be added to the gas to render its inhalation harmless; it was by inhaling nitrous oxide, when suffering from an alveolar abscess, and finding that the pain was completely abolished, that Davy was led to make his famous suggestion that this gas might be used in surgical operations.

Davy's suggestion was not adopted by the profession, which is not altogether surprising when the difficulties of obtaining and accurately administering gas in those days is taken into consideration. But the important fact had been definitely established: — "that unconsciousness could be artificially produced, and maintained, without damage to the individual." It is remarkable that after this nitrous oxide seems to have been regarded as a model of what an anæsthetic should be like, and we find ether and chloroform in many instances recommended as possessing properties similar to those of this agent; indeed, it was as a substitute for nitrous oxide that ether was recommended to Morton on the memorable occasion in 1846. And it was as a substitute for N_2O that ether was inhaled at those social functions which came to be known as "ether frolics."

I am tempted to quote here two episodes in the story of anæsthesia, which had no effect on its evolution, but which illustrate how easily even sound inventions may fail to reach the public. First, there is the story of Hickman,[5] a surgeon at Ludlow, who in 1822 conducted experiments on animals with carbon dioxide and with nitrous oxide gas, and as a result advocated that anæsthesia should be employed for surgical operations; but in spite of his appeal to the profession, both in England and in France, his proposals

met with nothing but scorn and derision, owing, in all probability, to his judges being ignorant of the value of research work ; or due, perhaps, to the popularity of mesmerism at that time.

Secondly, there is the story of Crawford Long, a practitioner in Jefferson, who had used ether anæsthesia in his own practice during the four years preceding 1846, but had failed to publish his results. This reticence may have been due to a reluctance on his part to draw conclusions from his few cases, only eight in four years ; and he was obviously not a man likely to jump to hasty conclusions, for on one occasion, after amputating a boy's finger under ether, he allowed him to recover consciousness and then amputated another finger to make sure that there was a real difference in the boy's two experiences. He cannot have been lacking in initiative, for he advocated open air and special feeding as a treatment for phthisis.

Moreover, Long was a very busy man with, probably, little opportunity for attending meetings or publishing records of his cases; and that he operated, not as a specialist, but simply as occasion occurred in the course of his general practice, we may conclude from the modest nature of his fees, as evidenced by an account which is still in existence :—[6]

James Venable
to Dr. C. W. Long, Dr.

1842.		$
Jan. 28.	Sulphuric Ether	·25
Mar. 30.	Sulph : Ether and Exsecting tumour	2·00
May 13.	Sulph : Ether	·25
June 6.	Exsecting tumour	2·00
		$4·50

The supremacy of ether which had in a few short months become absolute, was soon to be challenged by chloroform ; not being altogether satisfied with ether because of its disagreeable smell, and difficulty of administration, Simpson searched for a more suitable drug, and once again chemistry came to the assistance of medicine, for Waldie, a chemist of Liverpool, advised Simpson to try pure, chloroform, which he knew had the power of producing sleep.

The incident which convinced Simpson of the potency of this agent must have been a surprise for those who witnessed it. The occurrence took place one evening when Simpson had invited two colleagues to dinner, and finding on his desk a bottle of chloroform which he had sent for, in compliance with Waldie's suggestion, he persuaded his guests to join with him in trying the effect of inhaling some of the drug, each of the three being provided with a little of the precious fluid in a cup ; the result must have been alarming for the rest of the company, for we learn that when the meal was served these three men were found literally, and already, under the mahogany !

Chloroform soon grew in favour in all quarters, except America, and, as was inevitable, it soon began to exact its toll in the form of unexpected deaths.

Possibly these mysterious deaths were the decoy which attracted the interest of physiologists in the first place ; this interest has proved to be the mainstay of the speciality, and it would be a disaster if it should for any reason grow weary or flag. It is, I think, no exaggeration to say that the goal which every modern anæsthetist tries to keep in view is to conduct his administration on purely physiological lines ; in other words, he tries to keep as near to physiology, and as far from pathology, as possible ; his ideal is to keep

and to leave the patient normal or physiological; and it is chiefly by observing certain rather complicated reflex phenomena that he gets near his goal.

I think it will be agreed that a profitable field for further research lies in this direction; and that a study of the intrathoracic and intra-abdominal reflexes may lead to a better understanding of such post-operative sequelæ as massive collapse of the lung, and intestinal stasis. The fact that the vagus innervates the stomach and the muscles of the bronchial tubes may have a bearing, and the nerve supply to the musculature of the intestinal canal and its sphincters provides food for thought in connection with stasis following operative manipulation; and in the knowledge that these intestinal symptoms may yield immediately to intrathecal injection of novocain, we have a proof of their having a reflex origin.[7]

Fortunately, at the time of the introduction of ether anæsthesia, there was a practitioner in London to whose scientific mind this subject made especial appeal. Dr. Snow had already gained considerable experimental knowledge of respiration and asphyxia, and was, therefore, well prepared for this new study; and the proof of how successfully he carried out his task lies in the fact that at his death, which occurred eleven years later at the age of forty-five, he left behind him a classical work on anæsthesia remarkable for its fund of practical and theoretical information, based on the deductions which the author had drawn from his own clinical and laboratory observations, practically all of which stand to-day as correct. This was the man who first placed anæsthesia on a scientific footing. He was clearly a man of originality and versatility, capable of grasping whole problems without losing sight of essential detail, one who reminds

us of the saying that "men with great thoughts in their heads can think of little things which little men cover with their outspread feet." At one time Snow was deeply interested in the study of epidemics, and was convinced that the infection of cholera was not conveyed by foul smells but existed as a definite poison in water, and was contracted by drinking. On one occasion, in 1854, when cholera had been responsible for 500 deaths in ten days in the parish of St. James, Snow went to the vestry meeting and told the assembly that the prescription for curing the epidemic consisted in removing the handle from the pump in Broad Street; his suggestion met with scorn and derision at the moment, but eventually it was adopted, with the result that the epidemic ceased.

His researches[8] on inhalation led him to investigate the effect of many medicinal remedies administered by this method at the Brompton Hospital; but his most important inquiries were devoted to the subject of inhalation narcosis and were influenced, above all things, as Dr. Richardson[9] remarks in his memoir, by a desire to find "a narcotic vapour which, having the physical properties and practicability of chloroform, should, in its physiological effects, resemble ether in not producing, by any accident of administration, paralysis of the heart."

He fully appreciated the greater safety of ether as compared with chloroform, and being convinced that the reason for the disfavour into which the former drug was falling lay in the want of some special apparatus for its administration, he invented an inhaler which did a good deal to stem the tide of unpopularity.

His investigations into the cause of death from chloroform led him to make experiments to ascertain

what percentage of the vapour was necessary to paralyse the heart and the respiration respectively, and this is the piece of work upon which has been built up the art of safe anæsthetising. It is interesting to note that his conclusions were, in the main, confirmed by the committee of the Royal Medical and Chirurgical Society in 1864, also by the British Medical Society Committee in Glasgow, in 1880.

By the time of Snow's death, in 1858, anæsthesia was able to cope with the demands made upon her; but her real struggle to keep pace with surgery was to begin some thirty years later, when the victory over sepsis placed the innermost recesses of the human body at the surgeon's mercy: as a result of this advance, there has arisen an ever-increasing demand upon the power of anæsthesia to assist in the prevention of shock, and in the avoidance of unfavourable sequelæ.

On the whole, I think it must be allowed that the combined efforts of surgeons and anæsthetists have met with a reasonable degree of success in the matter of preventing shock at the time of operation; it must, nowadays, be a rare event for an operation to be abandoned or even unduly hurried, owing to the development of this menace; a matter for congratulation in view of the ever-increasing severity of operative procedure.

It seems to me that the criterion of a good or bad anæsthesia has, in a great measure, been removed from the time of operation to the time *immediately* following it, and that our chief anxiety nowadays must be the avoidance of complications, such as shock, acidosis, and pulmonary affections. So far, our progress in this direction has been uncertain, and we find ourselves still faced by a somewhat dense forest of difficulties; but eventually we shall, no doubt, find

our way through with the assistance of our colleagues in other departments of medicine.

If there is one topic more than another in which our different colleagues have shown themselves anxious to come to our assistance, surely it is in the attempt to unravel the confused tangle of conflicting evidence surrounding that mysterious phenomenon, shock.

This is a complication whose origin it may be quite impossible to determine; it may be caused by surgery, or by anæsthesia, or by both combined. When caused by manipulation, the remedy is naturally not within the sphere of the anæsthetist, but is literally in the hands of the surgeon. When due to anæsthesia, on the other hand, it is due to bad anæsthesia, and the onus is with the administrator. He has either poisoned or asphyxiated his patient, or he has allowed to pass nocuous impulses which he ought to have waylaid *en route.*

The toxic effect of anæsthetics upon the tissues is a recognised fact, and Storm van Leeuwen[10] has shown that impurities in the drugs may greatly increase this risk, but that, on the other hand, even with absolutely pure agents, the tendency is present; so that there is good reason to regard limitation of dosage as a really important factor in careful administration.

Crile[11] has taken an extreme view in this matter, seeing that he has based his famous anoci-association technique upon the assumption that general anæsthetics, with the exception of nitrous oxide, have no power to stop the flow of centripetal nerve impulses to the brain, and that this can only be affected by blocking the individual nerves concerned.

It is difficult to reconcile this statement with the ordinary events of anæsthesia, with the progressive abolition of reflexes in regular order, according to the

depth of narcosis; the question was investigated experimentally by Mann[12] of the Mayo Clinic, and he failed to produce shock in deeply narcotised animals by even prolonged and severe trauma of the limbs.

Perhaps the most common source of difficulty in this direction is met with when certain deep abdominal reflexes call for a more profound degree of narcosis than can be maintained for any length of time without running the risk of overdosing. It is in such instances as this that the combination of local analgesia with general anæsthesia proves so valuable.

This combined method represents the fruit of extensive clinical and laboratory research carried out by two antagonistic schools, the advocates of local and the champions of general anæsthesia; it has the great advantage of being easily adapted to practically all of the many conditions prevailing in surgery; and has advanced the fight against shock to a very appreciable extent. But there is need for still further physiological investigation, especially into the reflexes associated with certain of the branches of the vegetative nervous system, in order that there may be a definite understanding as to how far these nerves can be blocked without risk; experiments, perhaps similar to those of Camus[13] in 1912, by which he was able to show that the respiratory centre could be paralysed with novocaine without the mental processes being affected.

Thanks to the bio-chemist, we have learnt the important lesson that we must regard the state of anæsthesia as one in which there is a lowered blood alkalinity.

The tendency of chloroform anæsthesia to be followed by acidosis was the subject of a memorable paper published by Guthrie in 1894, but the full significance of the subject was only appreciated by

degrees, as the profession came to realise that the condition could be produced not only by other anæsthetics, but by a number of other, and quite different causes, one of which, it should be remembered, was the systematic starvation of patients to be operated on.

The advance made in our knowledge of this subject is a striking example of the help the anæsthetist has received from physicians and bio-chemists; it has enabled him to lessen materially the risks of operation; and his hand has been still further strengthened of late by the introduction of insulin.

The anticipation of shock, and the evaluation of the patient's powers of resistance, by means of one of the modern methods of interpreting blood pressure readings constitutes another lesson which has resulted from physiologico-surgical investigations. The method used by Moot[14] is a simple form.

The next remarks I have to make are from notes extracted from *The Index Expurgatorius* of the surgeon and anæsthetist; in other words, from records of post-operative pulmonary complications.

No one will deny that these have proved a tough bone of contention, and, shall I say it, of mutual recrimination between surgeons and anæsthetists, but there are signs now of a desire, on the part of the disputants, to bury this bone in neutral soil, and with scientific ceremonial.

The increase in the incidence of bronchitis, pneumonia, and pulmonary embolism in the subjects of high abdominal operations has proved rather difficult to explain, there being so many factors from which to select the culprit. That the anæsthetic, whatever its nature, is not the sole offender, has been confirmed by the experience of surgeons who have rung

the changes between local and inhalation methods, without succeeding in completely eliminating the trouble; the truth being, probably, as Finsterer[15] puts it, that neither ether nor chloroform causes pneumonia in itself, but that when given in excess, these drugs have the power to reduce the patient's resistance to infection, as proved by the experiments of Snell. The septic condition present in the lungs of many of the elderly patients operated on nowadays makes this question a very urgent one. Dr. Anderson, Pathologist to the Victoria Infirmary, Glasgow, in 1,831 consecutive post-mortems from the surgical wards, found that no less than 70 per cent. showed signs of chronic lung trouble. When added to this pre-existing focus of sepsis there happens to be a catarrhal epidemic in sway, the chance of infection must be considerable, even in the absence of surgical shock.

Michon and Pollosson[16] held the theory that lung complications are due, much more often than is generally supposed, to small septic emboli, the result of trauma of the mesentery or viscus; in order to avoid damaging the tissues during operation, they refrained from the use of forceps, swabs, or packs as far as possible; moreover, they often operated without gloves so as to preserve the delicacy of touch; and they found that the cases so treated were particularly immune from lung complications.

If eventually we see these dangers eradicated, it will be one of the finest results yet achieved by clinical research.

The evolution of anæsthesia has depended so largely upon physiological experiment and research, that I believe the many problems still awaiting solution would more than occupy the whole time and thought

of a surgery-physiologist if such an individual could be created.

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THE RECOMMENDATIONS OF THE ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.*

BY

J. V. BLACHFORD, C.B.E., M.D.,

Late Medical Superintendent, Bristol Mental Hospital.

THE Report of the Royal Commission on Lunacy and Mental Disorder has been issued, and it is the purpose of this paper to discuss the conclusions and recommendations as to certification, and treatment without certification, of patients suffering from mental disorder, and the difference in the methods of procedure necessitated by the alterations in the present Act. Treatment without certification, as a voluntary boarder, is already possible for a patient who places himself in an institution for treatment provided he knows what he is doing, where he is, and the nature of the contract, and he may leave the said institution at any time by giving twenty-four hours' notice in writing; but this only applies to those who can afford to pay the fees of a private mental hospital or licensed house, and so advantage cannot be taken of this method by one who would be a State-aided patient.

Under the Act of 1890 patients requiring certification are divided into two classes, private and pauper.

* Read at a Meeting of the Bristol Medico-Chirurgical Society, December 8th, 1926.

For the former, the law requires that there shall be a petition, accompanied by a statement of particulars, giving name, age, occupation, etc., two medical certificates (by men in no way connected with the patient, or each other, who must examine the patient separately), and a magistrate's order for detention, though there is no necessity for the magistrate to see the patient. In the case of the pauper the patient is taken before the magistrate by a relieving officer, and only one medical certificate is required, but the magistrate must see the patient. In addition, there is the "urgency order," by which a private patient may be admitted to a licensed house on one medical certificate and the order of a relative, and which only holds good for seven days.

The recommendations of the Commission are as follows:—

(1) That all patients be divided into two classes, voluntary and involuntary.

The voluntary system will apply to all cases, State-aided as well as private.

In the case of State-aided cases the visiting committee will be responsible for admitting or refusing, but in cases of urgency the Medical Superintendent may admit on his own discretion and report the case to them as soon as possible.

The notice to take their discharge is to be seventy-two hours instead of twenty-four as at present.

(2) The involuntary cases will be divided into two classes, those in whom recovery is probable in or under six months, and cases which in the opinion of the medical man will require longer; there will be no distinction between pauper and private patients.

Those likely to recover in a reasonable time will be placed under restraint by a "provisional treatment

order," to obtain which a relative, friend or public official will sign a petition for an order, and will take it with a statement of particulars of the patient's name, age, etc., and a disclosure of his property if any, and one medical certificate (in which it must appear that there is a fair chance of the patient's recovery within a reasonable period) to a Justice of the Peace, specially appointed, who must see the patient either at the patient's house or in an institution; and the magistrate, if he thinks fit, may make an order for provisional treatment which will authorise his detention in an institution for one month. If at the expiration of the month the medical superintendent of the institution is of opinion that the patient has not recovered he will give a certificate to that effect, and call in a Justice of the Peace, who may extend the order for another five months. If at the end of that time, six months in all, he is still of opinion that the patient is not well enough to be discharged, the patient must be certified in the ordinary way.

To certify a patient—in other words, to obtain a reception order—the petitioner must take his signed petition with statement of particulars, disclosing among other facts the patient's property if any, and two medical certificates by independent men (who may consult together), stating in the case of a person who has not been detained under a provisional treatment order that in their opinion the patient is not likely to recover within a reasonable time, to a Justice of the Peace specially appointed, who must see the patient, and, if he thinks fit, may issue an order for his detention. As regards the "urgency order," no change has been suggested.

The Commission also suggests that means should be taken for the more effective protection of medical

men and others in the *bona-fide* discharge of their duties, and suggests amendment of Section 330 of the Lunacy Act, 1890, so as to provide that no person shall be liable to civil or criminal proceedings unless he has acted in bad faith or without reasonable care, and that any proceedings commenced against such person *shall* be stayed upon a summary application to the High Court or Judge in Chambers, unless the Court or Judge is satisfied that there is substantial ground for believing that such act was done in bad faith or without reasonable care.

Section 330 Sub-sec. 2 of the 1890 Act says: "If any proceedings are taken against any person for signing, etc., such proceedings *may*, upon summary application to the High Court or a Judge thereof, be stayed." The substitution of the word "shall" for "may" will be welcomed by all having anything to do with the certification or detention of the insane, and had it been inserted in Section 330 of the 1890 Act would almost certainly have prevented the unfortunate litigation which occurred so recently.

These, then, are the suggested alterations in the Lunacy Act regarding the early treatment and certification of patients.

(1) As regards the voluntary boarders, we must all agree that provided efficient means are employed to prevent the misuse of public funds, the suggestion is excellent; we have all seen many borderland cases that could hardly be classed as certifiable, and who, had they had the chance to put themselves under treatment voluntarily, would have done so. In some of these future certification would have been avoided, and in others the tragedy of a suicide escaped. But the difficulty I foresee in dealing with these is that a large number of the applicants must be drawn from among

the constituents, or their friends, of the members of the Committee considering their case, thus placing these gentlemen in a very invidious and unfair position; and as there is a general tendency to increase the comforts and decrease the discipline in our mental institutions, besides increasing the number on parole, a time may arrive at no distant date when these may become more or less hotels for the unemployed or unemployable, especially in times of stress, the tariff being paid by the public. The abolition of the distinction between the pauper and the private cases, placing them all under the same procedure as regards certification, supplies a long-felt want. The present system is an anachronism, cumbersome, and at times very unfair.

When we come to deal with the Provisional Treatment Order it is difficult to discover anything in its favour. In the first place the Commissioners, Medical Superintendents, and medical men throughout the country for years have been insisting that there is no stigma in certification, that there is no more disgrace in a man becoming insane than in his having pneumonia or cardiac trouble; now, by introducing a method, the obvious purpose of which is to avoid the name of certification, they are admitting a fact which they have been denying, or at any rate are perpetuating a fallacy that for years they have been trying to dispel. In the second, can anyone tell me the difference between being detained under an Order for Provisional Treatment and under an Order for Detention? In both there must be a medical certificate, a statement of particulars divulging all the patient's private affairs. Both patients must be seen by a Justice of the Peace. In both the civil rights and liberty are lost until recovery. And in both the patient must be discharged if and as soon as he recovers.

Thirdly, there is the expense. This will be very materially increased both for those who enter private institutions and those who contribute to the maintenance of public asylums; the multiplicity of certificates, transport of judicial authorities, and court expenses mean something, and as copies of all orders and papers have to be sent to the Board of Control immediately, a considerable increase in the clerical staff of institutions will be necessary. With the income and other taxes at their present height, and no prospect of reduction, with local rates soaring and out of all proportion to the ability of many to pay them, it seems strange that a body of men should deliberately set out to increase public expenditure when so little benefit to the patients concerned is to be expected.

I have discussed only that part of the report which deals with the admission of patients, that being the only portion likely to be of interest to practitioners. I have, however, read most of the other suggestions, and can only say that, although it contains a number of alterations which will be very welcome, on the whole it is a disappointment. Having had conferences, correspondence, enquiries, and at last a Royal Commission, its authors must be congratulated on having upheld the best traditions of our Government Departments in having expended the greatest amount of energy with a minimum result. In the words of the old fable: "A mountain was in labour, sending forth dreadful groans, and in the neighbourhood there was the highest expectation. After all, it brought forth a mouse."

THE CENTRAL NERVOUS SYSTEM IN ADDISONIAN ANÆMIA.

BY

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Pathologist to the General Hospital, Bristol.

THE typical nervous lesion of pernicious or Addisonian anæmia is sub-acute combined degeneration of the spinal cord, which is accompanied by severe anæmia in so many cases that one synonym for the disease is the "anæmic spinal disease," another "anæmic pseudo-tabes."

The condition is often referred to on the Continent as the syndrome of Lichtheim, who first differentiated it from tabes dorsalis. The term "sub-acute combined degeneration" was first used in 1900 by Russell, Batten and Collier of the National Hospital, Queen Square, in their masterly description of the disease. Four years later Michell Clarke published the results of his extensive experience in an authoritative paper. Following this pioneer work, devoted to establishing the disease on a firmer ætiological and clinical basis, subsequent research, culminating in the work of Price-Jones and Hurst, has pointed, in no uncertain fashion, to the frequent association of neuro-anæmic syndromes with pathological states of the gastro-intestinal tract and notably with achlorhydria, congenital or acquired.

The changes found in the spinal cord post-mortem, although liable to considerable variation in degree, are unique of their kind. When at all well established there is diffuse, non-systematised but roughly symmetrical de-myelinisation and axon-destruction of its least vascular parts, viz. its white matter, the centre of the posterior columns, the marginal zones and the mid-dorsal region. The primary lesion shows no selection of anatomical tracts, and no indication that blood-vessel disease or inflammatory reaction from the meninges or elsewhere initiates the morbid process, whilst a very striking absence of neuroglial scarring makes the disease, in this respect, almost unique. The destructive changes in the white matter are usually slow in evolution, and perhaps occur more frequently than the symptoms suggest.

Starting as microscopic foci of necrosis with a tendency to symmetry, the initial lesions fuse to produce areas of de-myelinisation visible, after suitable staining, to the naked eye, never sharply circumscribed, never invading the grey matter but always retaining their rough symmetry. There is little tendency to shrinkage because of the paucity of neuroglial reaction ; on the other hand, in the early and intermediate stages of the disease there is a tendency to localised swelling from œdema. In one case, where the lesions were discrete, comparatively early and deeply-placed in the posterior columns, the naked-eye appearance of the cord suggested multiple tumour formation. Fig. 1, a low-power micro-photograph of this cord, shows the obvious projection backwards of the posterior columns. In any other type of destructive lesion the tendency would be towards gliosis and shrinkage. When the disease is allowed to run its course the white matter of the mid-dorsal region is eventually destroyed almost

completely by the fusion of innumerable foci of necrosis (see Figs. 2 and 3). Finally, secondary ascending and descending tract degeneration, responsible for the terminal flaccid paraplegia, takes place. During the early and intermediate stages, when myelin is being disintegrated, the vessels of the cord frequently show thick cuffs of myelin-phagocytes lying in their perivascular spaces.

Clinically the cases fall into the following three groups, but intermediate types are common :—

1. Cases of typical Addisonian anæmia, in which there is little or no evidence during life that the cord is diseased, but definite though slight evidence of the typical lesion post-mortem.

2. Cases of typical Addisonian anæmia with megalocytosis and mild jaundice, in which clear signs of the spinal cord lesion develop later. In this group half the cases are found.

3. Cases in which there is neither clinical nor numerical anæmia nor any jaundice, but in which neurological signs and symptoms dominate the clinical picture, such cases developing pernicious anæmia either in the late stages of the nervous disease or not at all.

The first group of cases is important chiefly from the ætiological point of view, but it is likely that, if all cases of pernicious anæmia were carefully examined, especially for minor degrees of loss of conduction in the posterior columns and for mild grades of spasticity, the number falling into this group during life would be higher. The percentage of cases of Addisonian anæmia in which the spinal cord is found involved post-mortem is said to lie between 75 and 80 per cent. There seems little doubt that the disease may leave the cord completely untouched. I failed to find any evidence

of disease in two cords from typical cases after a long search. Both cases were of a more acute type than the average, and possibly a certain degree of chronicity, especially of the gastro-intestinal symptoms, is necessary before the lesion can be demonstrated by the methods at present at our disposal.

A careful neurological overhaul is of importance in the second group of cases. Here, comparatively early in the course of the anæmia, the patient may complain of numbness and paræsthesiæ of the legs and show a minor degree of loss of the sense of passive movement and position or of vibration sense, before a simple blood examination will provide a definite diagnosis. It would, of course, be one's duty, having discovered such evidence of early and otherwise unexplained spinal cord disease, to eliminate Addisonian anæmia by resorting to an examination of the gastric juice for achlorhydria and to an examination of the blood, with special reference to the mean diameter of the red cells and the detection of hyper-bilirubinæmia, and also of the urine for pathological urobilinuria. At such an early stage the patient may give a history of diarrhœa without obvious cause. The hair is often prematurely grey. Not infrequently the patient gives a clear family history of pernicious anæmia or volunteers the information that he has been noticeably pale for several years, or, in a few cases, actually from childhood.

Those cases in which the gross signs and symptoms of spinal cord disease are present but in which the blood shows no abnormality are not common. Some of these cases present the signs of frank Addisonian anæmia almost as a terminal event. In others no clinical anæmia develops, but examination discloses an increased red cell diameter and perhaps slight jaundice. In a very small number blood changes are absent, and no

PLATE I.

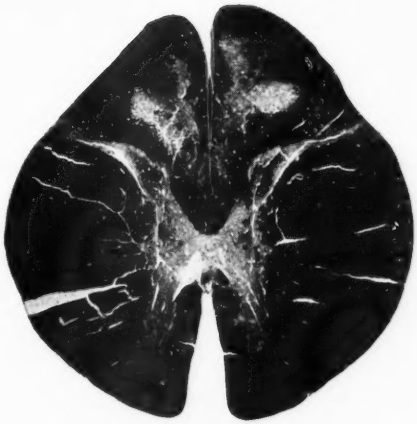

FIG. 1.

Early lesion in posterior columns: case of scirrhous cancer of stomach. Lesion has produced considerable swelling.

(Weigert-Pal preparation.)

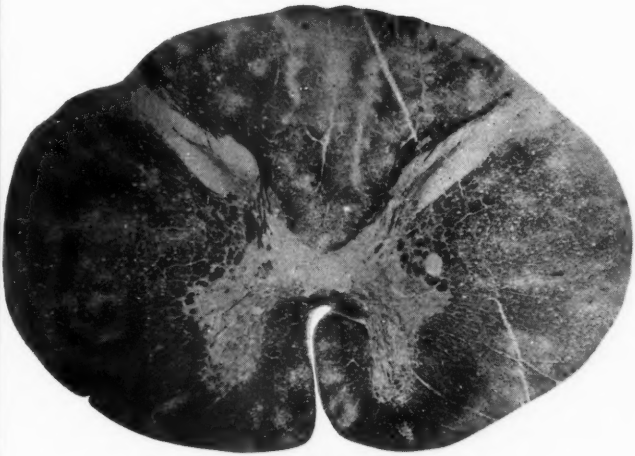

FIG. 2.

Sub-acute combined degeneration (advanced).

Foci of degeneration are pale.

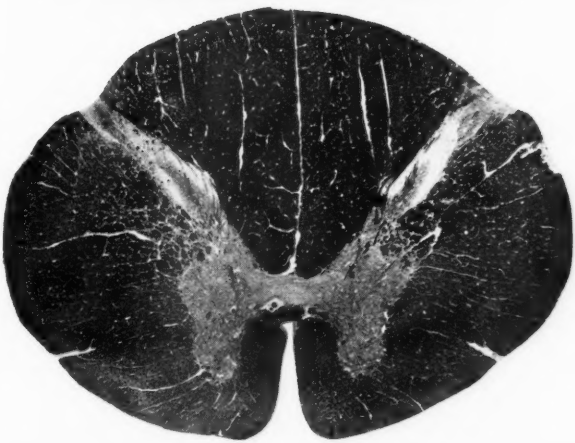

FIG. 3.

Normal cord stained with above, for comparison.

PLATE II.

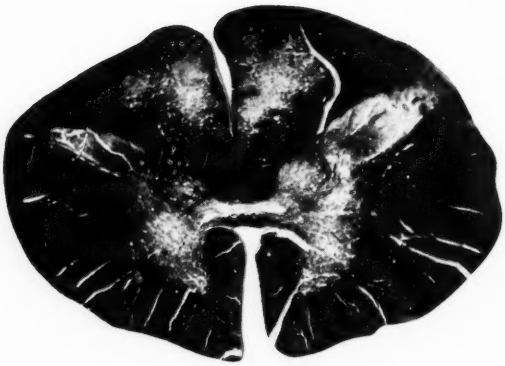

FIG. 4.

Sub-acute combined degeneration occurring in connection with scirrhous cancer of the stomach. (Weigert-Pal.)

FIG. 5.

Spinal cord in pellagra, showing marginal demyelinisation.

signs of increased hæmolysis can be made out. In some of these achlorhydria is present and, perhaps, when kept under observation for long periods, several slight and almost unnoticed attacks or one or more severe bouts of hæmolytic anæmia may appear.

About twelve months ago I saw with Dr. McKenzie of Southville a middle-aged, grey-haired man in the early stages of subacute combined degeneration of the cord whose blood was normal in every respect, and in whom no evidence of increased internal hæmolysis could be found. He had a total achlorhydria. A short time ago I again measured his mean red cell diameter and found it normal; he has now undoubted subacute combined degeneration.

In such cases the problem for solution is whether subacute combined degeneration ever develops apart from hæmolytic anæmia. We cannot accept this as proved in any given case unless it has been observed long enough to exclude the occurrence of hæmolytic periods, either intercurrent or terminal.

In considering these three clinical groups there seems, therefore, to be ample evidence for assuming that the central nervous system in Addisonian anæmia may suffer attacks of every degree of severity, in the majority of cases apparently escaping altogether, in others showing lesions which require care and microscopic vision for their detection; in some cases the cord is involved late in the disease, whilst in others it bears the brunt of the attack, no anæmia capable of giving rise to symptoms or serious visceral change developing. There is a similar variation in the duration of the disease, in the intensity of the diarrhœa, in the degree of hæmolysis and in the soreness of the tongue.

Clinically, and from the neurological point of view,

the symptoms and signs of the nervous lesion vary in intensity and duration within very wide limits. The course of the average typical case is usually divisible into three stages :—

1. A *Prodromal Stage* of four to twelve months characterised by subjective sensations in the limbs, mild spasticity and alteration in conduction of deep sensation.

2. The *Stage of Onset*, in which either ataxia from loss of deep sensation, spastic paraplegia with increased deep reflexes from pyramidal disease, or a combination of ataxia and spasticity, gradually evolves over a period of several months.

3. The *Terminal Stage*, in which the paraplegia becomes flaccid with loss of reflexes and superficial sensation becomes profoundly altered. The legs become œdematous, the sphincters fail, and there are frequently mental changes. The average course of the disease is under two years, and it is invariably fatal. The subjective sensations observed by the patient are usually the first signs of the disease, and take the form of numbness, tingling or pricking sensations in the limbs and sensations of cold and heat. Symptoms such as these in a patient between 45 and 50 call urgently for a blood examination. During this stage, unless prevented by the anæmia, the patient is usually working and walking. Sooner or later the majority of patients show impairment in conduction of deep sensation, especially the sense of passive movement and position and vibration sense, or, if the pyramidal tracts are picked out, weakness and mild spasticity with increased tendon jerks. For four to twelve months these symptoms slowly increase in intensity and insensibly there develops either a gross ataxia, a definite paraplegia

or a mixture of pyramidal and posterior column disease. On the other hand, a patient who has been in the prodromal stage for a couple of months may be suddenly precipitated in a few days or even in a night into spastic paraplegia or severe ataxia.

Much the same degree of variation characterises the transition between the stage of the onset and the terminal stage, the first sign of which is usually weakening of the ankle jerk. The terminal stage in quiet cases may last six months, involve the trunk and lead to muscular atrophy of the legs and hands.

Finally, there remains the fundamental problem of the causation of the nervous lesions, and at the outset we must decide whether similar lesions occur in other diseases. If we take the broader characteristics of this affection—the diffuse character of the non-systematised and roughly symmetrical destruction of the least vascular parts of the spinal cord—and disregard histological minutiæ and variations in the healing process, we find that similar lesions, although uncommon, occur in association with a series of conditions in all of which there is a strong probability of chronic toxic absorption from the stomach and small bowel. Following the long-continued achlorhydria of the more chronic types of cancer of the stomach, a lesion, essentially similar to that of subacute combined degeneration of the spinal cord, is occasionally found. In a few of these cases a hæmolytic anæmia with increase in the average size of the red corpuscles and deposition of iron in the liver may develop, giving a clinical picture very like that of pernicious anæmia, except that there is some degree of cancerous cachexia. It seems very probable that in these cases the gastric neoplasm sets up conditions necessary

for the development of a toxic hæmolytic anæmia approximating to the pernicious type, including an initial achlorhydria.

I investigated such a case for Dr. Carey Coombs in 1923. The patient, a wasted, slightly jaundiced and very anæmic man of 54, complained of tingling of the legs and difficulty in walking upstairs. His blood showed profound anæmia with a high colour index ; and post-mortem his viscera showed moderate siderosis. Lying in the greater curvature of the stomach was a dense spindle-shaped mass almost cartilaginous in consistence and about $1\frac{1}{2}$ inches in its longest diameter. On section the mass proved to be an adeno-carcinoma with a dense fibrotic stroma. The white matter of the spinal cord showed non-systematised degeneration in a comparatively early phase (see Fig. 4). The sequence of the events in this case would appear to be a primary scirrhous carcinoma of the stomach with achlorhydria, followed by a secondary hæmolytic anæmia and subacute combined degeneration of the cord. Very closely allied to such a case are those in which subacute combined degeneration has followed gastrectomy.

A lesion of the cord very similar in many ways to that of Addisonian anæmia is also found in practically all fatal cases of pellagra, in which bouts of diarrhœa occur as a prominent symptom during life, and atrophy of the small bowel is discovered post-mortem. I have investigated a typical case with Dr. Barton White of the Bristol Mental Hospital, in which marginal destruction was present on both sides of the cord, together with striking naked-eye atrophy and thinning of the wall of the small bowel (see Fig. 5). In this connection it is interesting to note that when gastrectomy is survived for a long period pellagra may

subsequently develop in the absence of the usual dietetic factors. An account of another case, also studied at the Bristol Mental Hospital by Dr. Barton White and myself, will be found in the next paper of the present issue.

That there is probably a lymphatic pathway capable of transporting bacterial toxins from the peritoneal cavity to the spinal cord, and that such toxins may produce lesions similar to those of subacute combined degeneration, is strongly suggested by the work of Orr and Rows, who introduced celloidin capsules containing living staphylococci into the peritoneal cavity of rabbits and found widespread degeneration of the white matter of the cord similar in type to that occurring in Addisonian anæmia.

In conclusion, therefore, we may say that subacute combined degeneration of the cord is not confined to cases of Addisonian anæmia, nor is it diagnostic of this. Whenever it is found there has usually preceded it a long period during which gastro-intestinal symptoms were present and toxic absorption from the small bowel probable. The spinal cord lesion differs in several essentials from that found in other degenerative conditions, so much so that it is almost unique. There is a strong probability that the lesion is toxic in nature and the toxin intestinal in origin and bacterial in type, a conclusion supported by the demonstration in animals of a free lymphatic pathway from the peritoneal cavity to the spinal cord, and by the production of essentially similar experimental lesions by bacterial toxins.

As a working hypothesis it is not unreasonable to incriminate congenital or acquired achlorhydria as the primary and central ætiological factor in the production of subacute combined degeneration. From the clinical

point of view, a complete neurological overhaul especially directed to discover loss of conduction of deep sensation or the presence of mild degrees of pyramidal involvement will in some cases lead one to a diagnosis of Addisonian anæmia, whilst in others it may help considerably in confirming such a diagnosis in doubtful or early cases.

PLATE III.

PELLAGRA.

Female, æt. 21. *Eight months' history. Taken a few weeks before death*

OBSERVATIONS ON PELLAGRA.

WITH AN ACCOUNT OF A CASE.

BY

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AND

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INTRODUCTION.

PELLAGRA is a disease of considerable interest to those having the care of mental patients, as in the British Isles it is almost confined to those mental patients who refuse food. It is not a result of mere starvation, for it is rare amongst cases of obstructive gastro-intestinal cancer, however chronic. Nevertheless, its origin appears to be dietetic and its primary lesion gastro-intestinal. With the majority of observers we consider the primary fault to be a state of avitaminosis and the visceral manifestations to be the result of a toxæmia predisposed to by the dietetic deficiency. The disease has a valuable external sign—a typical dermatitis due to an abnormal sensitiveness to ultra-violet light. It is curable in the early stages by suitable dieting, but when once established neither this nor any other treatment seems to avert a fatal issue. In the care of the insane, therefore, it is of considerable importance, first, to look on all patients who consistently refuse food as potential pellagrins, whilst

realising that only a small percentage are susceptible; second, to regard gastro-intestinal symptoms, especially soreness of the tongue and attacks of diarrhœa, in such patients as laying them under suspicion; and, third, to regard an excessive reaction to ultra-violet light as a sufficient indication for vigorous dietetic measures. Two cases of the disease have recently occurred at the Bristol Mental Hospital, Fishponds, one of which we report in this article.

CASE REPORT.

Abstract of history and clinical notes.

Young married woman in fairly comfortable circumstances, aged 21, married about two years, one child nearly 12 months old, breast fed. No family history of insanity or alcoholism: other members of family healthy and normal. Has not been out of the South-West of England, and has enjoyed good health. She was nervous and depressed after her child was born, and for the last few weeks would sit staring in front of her, lost interest in her home and neglected it. She began to feel that she was not able to nurse the child, and acquired the delusion that she was slowly killing it, and that death was to be her punishment. She was sleeping badly and took very little food. Admitted in February, 1926.

She was a blonde with a clear pink and white complexion and blue eyes. The skin was rather dry and waxy. She was in a reduced condition, with poor muscular tone and signs of recent wasting. Height 5 ft. 1 in., and weight 6 st. 5 lb. Head well shaped. No stigmata except the hands, which were long and narrow with little thenar and hypothenar eminences and the thumb only slightly opposed to the fingers—suggesting the simian hand. The teeth were well shaped, but several were carious and the gums, and mouth generally, in a dirty condition, chiefly from neglect. The tongue was dry and red. The lips were dry. The stomach was not dilated, and examination of the abdomen showed nothing abnormal. Menstruation was said to be scanty and irregular. Urine, sp. gr. 1022, no albumen or sugar. Heart and lungs were normal. The pulse was 80 and temperature 97·0. The thyroid was normal to palpation, not enlarged, and symmetrical. All tendon reflexes were exaggerated; plantar response flexor; abdominal reflexes

present. The pupils were dilated, regular and equal and very sensitive to light. There was apparent anæsthesia to pin-pricks over the trunk and limbs but not on the dorsum of hands. This could only be tested by muscular response, as she was in a state of stupor. A month later there was fair co-ordination of movements. She showed marked catatonia, the limbs remaining in any placed position. Her mental state was one of catatonic stupor. Her expression was vacant. She would react to no stimulus, but would swallow liquids from a feeding cup. She was incontinent, and could do nothing for herself. She was put to bed on a verandah facing south. After ten days she began to look about her and whispered a few replies to questions. She began to be restless during the night, and would sit up in bed and appear distressed: conversations and suggestion pacified her for a time, and she began to take solid food. She spoke readily, but in monotone. She then displayed ideas of apprehension, and had the delusion that she was to be buried alive or put in a boiling bath to kill her, and begged not to be taken to the bathroom. She asked for reassurance, but would accept none.

It was thought that this was a case of *folie à deux*, as the patient in the next bed on the verandah had been giving expression to the same distressing ideas for some time. This patient was removed, and to some extent these ideas faded after a fortnight. She was now thought to be a case of dementia præcox. She began to repeat her delusions automatically and without emotion, and would cry out loudly at times, though not distressed. Early in May she became sunburned about the face and neck in common with others on the verandah. When dull weather supervened this did not fade as in the others, but became dusky red with inflamed margins slowly spreading. Brownish pigmentation appeared, particularly at the edges. The dorsa of the hands, which were often covered by the bedclothes, were less affected, but the same condition appeared about the joints. The skin of the face became raised and thickened and more deeply pigmented in patches. A few suppurating bullæ appeared and remained as open septic sores. The lips were dry and had septic cracks. In other places the skin became thickened and scaly and more darkly pigmented. The dorsum of the hands showed thickened, pigmented and scaly patches over the knuckles, showing the condition described as dermatogra. There were ulcers inside the lips and cheek. She was resistive and difficult to feed. Towards the end of May she had periodic attacks of diarrhœa with liporrhœa and

creatorrhœa, which would last two or three days. She became very emaciated and exhausted. The temperature rose to 103°, and she vomited on several occasions. She showed signs of septic absorption, and gradually sank and died on June 15th, 1926. Cultures from the stool showed no pathogenic organisms. Sugar tolerance tests were normal, and the blood urea was not increased.

Abstract of post-mortem notes.

Externally.—Considerable emaciation. Skin rash present as described in clinical notes, with considerable recent acute dermatitis superimposed.

Tongue.—Smooth and atrophic with several shallow linear ulcers.

Thyroid and Parathyroid showed no abnormality in size, weight or appearance, and were normal histologically. Some general enlargement of cervical lymphatic glands, but no softening or suppuration.

Thorax.—Thymus gland atrophic and practically all fat. No abnormality in the heart beyond terminal softening and friability of myocardium. Bases of both lungs showed hypostatic congestion, but were otherwise normal.

Abdomen.— *Stomach* normal in size and shape. Moderate degree of atrophic gastritis, rugæ ill-defined, inner surface smooth, and walls definitely thinner than normal.

Small bowel.—Externally, walls thin and fragile. Internally, valvulæ conniventes thin, and mucous membrane pale, sodden and dusted with small hemorrhagic points : no ulceration, no peritonitis, no enlargement of mesenteric glands.

Large bowel shows same condition of general atrophy, and "tissue-paper" walls, except for last foot of colon, where the mucous membrane is denuded and there is shallow superficial ulceration with a thin greyish diffuse slough and a few points and streaks of hemorrhage. Strips of the bowel wall four inches long and an inch wide were cut from various regions, and after being rolled up were tied, embedded in paraffin wax and cut. These were compared with similar sections taken from a normal control. As is usual in post-mortem material, the mucous membrane in both series showed considerable surface desquamation of its cells, but it could be easily established that this was more marked in the pellagra specimen. With this change there was a generalised but moderate atrophy of the submucous lymphoid tissue ; the

follicles were small and ill-defined, and the cells less closely packed than normal. There was definite congestion in the submucous coat, and in this layer and in the supporting tissue of the villi there was a constant and striking diminution in the number of leucocytes and wandering cells. Although these observations were controlled, we are aware that there are fallacies in accepting such appearances as these as part of the morbid anatomy of the disease, as sections of the small bowel vary so much with the state of its activity ; but we feel satisfied that this generalised atrophy, especially of the lymphoid elements, and the lack of phagocytic cells in the sub-mucosa are more than can be accounted for by assuming that the mucous membrane was in the normal " resting " condition. The changes in the colon were of recent date and acute in type.

Spleen.—Not increased in size. Pulp rather soft but not suggestive of acute infection.

Liver, bile passages, pancreas.—No abnormalities were detected in these organs. Histologically no abnormality was found in the liver except the changes associated with recent acute toxic degeneration of its cells, in all probability produced during the terminal phases of the disease.

The suprarenal glands showed no abnormality in size or weight and appeared normal histologically.

No abnormalities were discovered in the genito-urinary organs.

Nervous System.—The peripheral nervous system was not examined. Sections of the spinal cord and cortex were stained for degenerated myelin by the Weigert-Pal and Marchi methods and for neuroglia and nerve cells. The changes found were slight. No conclusive nerve cell degeneration could be demonstrated, but in several sections from the mid-dorsal cord small areas of degeneration were constantly seen deep in the posterior columns in the tract of Goll, and always in the same position. When examined by the Marchi method the foci were found to be composed of scattered irregular areas of degenerating myelin, between which were many intact sheaths. The insignificance of the changes found, although consistent with the clinical condition, struck us very forcibly, as previous experience of these cases has always resulted in the discovery of much grosser changes. No neurogliosis was found.

Pituitary body seemed to be rather larger than normal on naked-eye examination, but histologically there was no reason

for supposing that the glandular activity was in any way in excess of normal.

Remarks on Reported Case.

As is usual in this disease, the light-dermatitis first suggested the diagnosis. Later this became typical in appearance and character and, being accompanied by the typical stomatitis, a red, glazed tongue and attacks of diarrhœa, warranted a confident diagnosis. The only other skin condition resembling pellagra is the type described by McCall Anderson as associated with porphyrinuria. In this the destruction of skin is greater and the urine deeply pigmented. At no time was any abnormality in the colour or chemistry of the urine found. When it was observed that the dermatitis progressed even when the skin was covered and the patient kept indoors, a thorough examination of the nervous system was undertaken, especially with the object of detecting minor degrees of loss of conduction in the posterior columns of the cord. No physical signs of this could be detected at any time, but the difficulties in the examination of the sensory system in the insane are notorious.

Compared with the average case, the course was rapid and the emaciation and diarrhœa severe. It is well known that almost at any time a pellagrin may lapse into a typhoid-like state and die in a few weeks, and we assume that in this case the terminal phase of the disease supervened before the changes in the spinal cord had become established.

It seems very probable that long before the light-dermatitis develops changes in the gastro-intestinal tract are taking place, and as a rule some degree of stomatitis or diarrhœa antedates the skin lesion, whilst both dermatitis and diarrhœa almost always

antedate nervous signs and symptoms. As this patient was admitted in the winter, it is likely that there may have been a period of several months during which minor gastro-intestinal symptoms were present.

As regards the dementia, it seems extremely likely that this was not the mental state proper to pellagra, which is found during the latter half of the disease in patients with the dermatitis and gastro-intestinal symptoms fully developed; but, as is usual in this country, during a period of mental ill-health characterised by the refusal to take food, the changes in the bowel characteristic of the first stages of the disease were established. The course of the disease and the relatively meagre post-mortem findings leave us in no doubt that the case was one of pellagra of a rather unusually acute type.

DISCUSSION.

The preliminary avitaminosis.—Most, though not all, authorities favour the view that a period of avitaminosis precedes the onset of the disease. The following considerations support this view:—

(*a*) Pellagra is always preceded either by poverty or by refusal or inability to take food. When it is preceded by poverty the provocative diet is usually composed of one article of food only (*e.g.* maize or rice).

(*b*) It is a general principle in the case of experimental animals that the administration of the defective vitamin cures avitaminosis in the early stages but is ineffective later. This agrees with clinical experience in pellagra.

(*c*) Gastro-intestinal atrophy has been shown by McCarrison and by Cramer to be a frequent accompaniment of states of experimental avitaminosis. This agrees with the post-mortem findings in pellagra.

The vitamin concerned.—We may rule out the large group of vitamins concerned with growth in young animals, *i.e.* most of the fat-soluble group (A and B), and probably the water-soluble, anti-scorbutic vitamin. The remaining group, water-soluble B, contains two vitamins essential to normal nutrition at all ages, one a growth-promoting vitamin, the other anti-neuritic. It is significant that neither of these vitamins can be stored in large amounts in adult tissue as the fat soluble factors can, and that symptoms follow fairly soon on their withdrawal from the diet of experimental animals, whilst continued deprivation is invariably fatal with progressive loss of weight. These vitamins are contained in all natural food-stuffs, chiefly in plant seeds, birds' eggs and yeast. They seem to be always associated with purine and pyrimidine bases, and may be concerned with nuclear metabolism. Deprivation of this group of vitamins is definitely associated with gastro-intestinal atrophy and defective fat absorption, and notoriously with neuritic disease such as avian polyneuritis, which is now recognised as the equivalent of human beri-beri.

Onset of Pellagra.—A gastro-intestinal onset is usual. With the initial stomatitis and smooth, sore tongue, achlorhydria has been frequently reported. Attacks of diarrhœa are practically always present. In these respects the disease has several points of contact with pernicious anæmia, and it is not at all unlikely that the oligocythæmia and non-systematised

degeneration of the cord found in both conditions is due to failure of the stomach to sterilise its contents from lack of acid, and to toxic absorption from the small bowel. It is interesting to note in this connection that pellagra has been reported to have accompanied six cases of gastric cancer, another condition which, especially when it runs a chronic course, is liable to give rise to sub-acute degeneration of the cord.

The Spinal Cord Lesion. — Kinnier Wilson has described a scattered irregular degeneration of the myelin sheaths of the peripheral nerves, degenerative changes in the cells of Clarke's column, and pseudo-systematised degeneration of the spinal cord most marked in the column of Goll and the marginal zones. He found a singular absence of inflammatory changes. Clinically, there is a general tendency to describe the nervous manifestations as occurring late in the disease. In our experience the nervous manifestations may be surprisingly slight in the more acute cases. The spinal cord lesion of lathyrism, which occurs in India during famine years, resembles that of pellagra, which in turn is usually held to be indistinguishable from sub-acute combined degeneration of pernicious anæmia. The mechanism of infection of the spinal cord is suggested by the work of Orr and Rows, who demonstrated in animals a free lymphatic pathway capable of transporting bacterial toxins from the general peritoneal cavity via the perineural lymphatics to the spinal cord. The severity of the lesions in the cord compared with those of the peripheral nerves is in accord with the principle that nerve fibres in the substance of the central nervous system are more vulnerable than those in peripheral nerves.

The Skin Lesion.—Undue sensitiveness to ultra-violet light is typical of pellagra. In the case reported

it resulted in a rapidly spreading severe dermatitis. In the more chronic cases it improves very considerably during the winter. This symptom recalls the light-sensitiveness found in congenital porphyrinuria, but absent in the acquired hæmato-porphyrinuria of sulphonal poisoning. Porphyrin is a structural unit common to all hæmoglobins and chlorophylls; it is iron-free and composed of four substituted pyrrhol roups. One variety, coproporphyrin, is normally present in the bowel, and it may be that the atrophied gastro-intestinal wall in pellagra becomes pervious to this pigment and excessive quantities are absorbed. We feel strongly that in this country at least, and in asylum practice in particular, too much stress should not be laid on the presence of the skin lesion in its typical form in making a provisional diagnosis of pellagra. The typical tongue and mouth lesions, combined with bouts of diarrhœa, in an emaciated patient refusing food are sufficient for a provisional diagnosis. It is needless to add how easy it may be to miss these signs in an insane patient. The treatment should include a review of the vitamin content of the feeds, with the addition of egg-yolk and yeast and the administration of hydrochloric acid.

SOME CLINICAL ASPECTS OF STERILITY.*

BY

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STERILITY is commoner than is generally known, and gives rise to much distress, especially amongst the industrial class of patients. I am often told at the Royal Infirmary "my husband will leave me if he cannot get a child from me," and the patient suffers from a sense of inferiority almost equal to that which prevails in the East.

The usual classification adopted is that of absolute and relative sterility, and the causes are protean, but can be roughly divided into :—

(1) Those consisting of some anatomical defect which will entirely prevent fertilisation or ovulation.

(2) Those following upon some pathological impairment of a previously healthy genital tract.

(3) Those dependent on defects in the husband.

It is obvious that careful investigation and diagnosis are of paramount importance. The husband should never be forgotten in the investigation, and this is well illustrated by a case sent to me in 1923.

The patient had been married five years and had never become pregnant. There was nothing in her history or physical examination to account for her sterility, and I could obtain no account of any difficulty or abnormality in the sexual relations.

* Based upon a short paper read before the Bath and Bristol Branch of the British Medical Association on Oct. 27th, 1926.

I interviewed the husband, who confirmed this, but finally told me he had been operated on when quite young for "hernia." I found him to be a double cryptorchid. A specimen of seminal fluid was reported as being quite normal except for complete azoospermia. The man had no idea that he was in any way abnormal sexually, as he believed that the placing of his testicles within the abdomen was a usual procedure in cure of hernia.

One of the most striking features of the cases I have seen is the regularity with which they have been treated by dilating and curetting, many of the patients having undergone this operation more than once.

Now, when sterility is due to infantile uterus, a fairly common condition always accompanied by intrinsic (spasmodic) dysmenorrhœa, this procedure is of great value. My personal experience, however, is that by far the commonest causes are: first, endocrine upset usually associated with obesity; second, old pelvic peritonitis leading to pathological conditions of tubes and ovaries, and it is with these two conditions that this short paper deals. In parenthesis, it is obvious that dilating the cervix is mere waste of the patient's time and money if either of the above conditions exists.

Endocrine Sterility.—This condition appears to be very common locally, and is associated with obesity and a varying degree of hypothyroidism. Presumably the local limestone formation is a predisposing cause.

The thyroid and the ovary are interdependent to a very large degree, and administration of thyroid gland substance has a very stimulating action on ovarian activity. I have been unable to obtain any action whatever from "ovarian extract." I have given 50 grs. in one dose and found no toxic symptoms develop. I cannot think that a drug which is not toxic in such quantity can exert any therapeutic action in the usual doses of $\frac{1}{2}$—3 grains.

The victim of endocrine sterility is almost always fat. She gives the history of having rapidly put on flesh for some years or months and, at the same time, of her periods becoming more and more scanty. Often she will state that they last but a few hours. She is slow mentally, and complains of her hair falling out, especially from the outer half of the eyebrow. This type of patient may put on weight to an enormous extent. One of my cases weighed 9 stone at marriage, and when seen by me four years later weighed just over 18 stone!

The treatment I adopt is the administration of thyroid gland in large and increasing doses. In my early cases I admitted the patient to the wards so as to keep them under observation, but I found it was quite unnecessary.* I start with a daily dose of 5 grs. thyroid (=1 gr. sicca) and add 2 grs. each week. The patient should be seen weekly and weighed. She is instructed to complain at once of any palpitations or "dizzy attacks." In most cases no effect is observed until the dose is in the region of gr. 15 a day. I continue increasing the dose until symptoms of hyperthyroidism are produced, and I find that this occurs, as a rule, at between 20 and 30 grs. a day. When this stage is reached the dose is halved and the patient watched to see if that dose will suffice, or if it can be lowered still more. Most of my cases are now on a permanent dose of from 3 to 10 grs. a day, with "rest periods" of a couple of months at intervals.

The effects of this treatment are usually dramatic.

* NOTE.—Thyroid gland should always be ordered with its equivalent in dry gland stated; *e.g.* Ext. Thyroid gr. 10 (=2 gr. sicca), for some chemists dispense *whole* gland and some dry gland. One of my patients on 20 grs. a day changed her chemist, and this produced symptoms of severe toxicity in a few days. I found she was taking 20 grs. "sicca," equivalent to 100 grs. whole gland a day.

The patient loses weight rapidly, often 5 or 6 lbs. a week. The periods become normal. The mentality improves, and in a number of cases pregnancy has occurred within twelve months of the commencement of the treatment. As all these patients who conceived had been married over three years, I think it is a fair inference that the thyroid was the direct curative agent, especially as the menstrual periods had become normal in each case. I quote one illustrative case.

Mrs. A. B. came to the Royal Infirmary complaining of sterility and great increase of weight. Married five years, weight 17 st. 5 lb., "used to weigh about 8 stone." Her period came on three or four times a year, and "was only a few spots." She used to menstruate for six or seven days. She was put on increasing doses of thyroid, and at the end of seven months her weight was 12 st. 2 lb.; her periods were regular and she saw them for four days. She was then taking 25 grs. a day (=5 grs. sicca). She became pregnant after nine months' treatment, and gave birth to a daughter in the Royal Infirmary. She is well and normal at present (eighteen months later) on grs. 8 thyroid a day. So convinced was she of the principle of cause and effect that the child was christened Thyra to commemorate its origin!

Sterility due to Pelvic Peritoneal Inflammation.—This is, to my mind, the commonest of all the classes of sterility. The peritonitis may have originated in childhood and have been quite forgotten, a history of "inflammation of the bowels" being the only sign-post to go by. I have had many cases following operations for appendix abscess, and of course the usual ascending pelvic infections account for many. The "one-child marriage," so often due to mild puerperal infection (frequently gonococcal), may be classed with this group, though it is not, strictly speaking, sterility. It is in these cases that the greatest number of curettings and dilatings have been done with no effect.

The patient usually has some symptoms to show to

account for her troubles. There is possibly a mild cervicitis, and very often a retroverted uterus. This is replaced, and she is then curetted, and as no pregnancy follows, the process is repeated with like results. The real trouble lies in the tubes and, possibly, the ovaries.

The great anatomical defect of the female organism is the presence of a passage between her peritoneal cavity and the surface of the body (vaginal canal), viz. the Fallopian tubes. These tend to be very easily obliterated, or kinked and obstructed, when any ascending infection takes place. In either case sterility is the result, as the ova and spermatozoa cannot come into contact with each other; even if they do, a tubal pregnancy may result. Furthermore, cases will often be found in which the whole of both ovaries are covered over by a "skin" of adhesions which may effectually prevent the escape of ova into the tube.

The frequency of a mild pelvic peritonitis will be granted by anyone who has had experience of abdominal surgery in women. It is almost the exception to find an abdomen in which there are no pelvic adhesions at all. And kinks and obliteration of both tubes may be present without any gross lesion which can be detected by ordinary methods of examination.

It is in these cases that the method of testing the patency of the tubes by passing carbon dioxide through them is so valuable, and I am much indebted to Major V. B. Green-Armytage, I.M.S., of the Eden Hospital, Calcutta, for drawing my attention to the ease and safety of the method about to be described.

Impey [1] wrote enthusiastically on this subject, and Victor Bonney has several times described its value, but the numerous papers by Provis amd Rubin have set this method of diagnosis on a firm basis.

The method is simple, and can be applied in the

consulting room or bedroom without difficulty. The apparatus (Allen and Hanbury's Provis apparatus) consists of a "Sparklet" syphon adapted to fit to a wash bottle with a special glass delivery bell which lets out a bubble of 10 cc. of gas. This is connected to a catheter about 10 inches long made of flexible metal, with a cone-shaped obturator $\frac{1}{2}$ inch from its extremity. Interposed is an aneroid manometer. The whole apparatus is carried in a box the size and shape of a microscope case and is quite light.

Two precautions only are needed: (*a*) the test must not be made within five days of a period, as the endometrial congestion may give a false reading; (*b*) there must be no profuse cervical discharge.

The method employed is to pass a speculum and then to mop the cervix over with *Tr. Iodi*, passing a little up the canal on the Playfair's probe. (Provis has had no peritonitis or salpingitis in 1,000 cases.) If necessary, a bullet forceps vulsellum is placed on the cervix, and the catheter is pushed into the cervical canal till the cone-shaped obturator is firmly pressed into the external os. The gas is now turned on, and it should pass over at a rate of roughly one bubble (=10 cc.) in twenty seconds. The manometer is then watched carefully. In a *normal* case gas passes into the peritoneal cavity at about 110—130 mm. Hg.

Not more than three bubbles should be passed in. It is easy to detect the pneumoperitoneum, and the gas can be heard to pass in if listened for with a stethoscope. Any escape into the vagina is at once audible, and it is quite unnecessary to fill that canal with fluid as has been suggested. The patient can be tested with equal ease on the back or in the lateral position. Personally I use the latter, as it is less unusual for the patient.

In an *abnormal* case one of two conditions may be

found : (*a*) complete block of both tubes, or (*b*) " sticky" tubes, kinked or partially obliterated.

In the case of complete occlusion, the manometer will rise steadily to 200 mm. Hg., beyond which it is not safe to go, and the patient usually experiences some pain at this stage. The sterility can now be diagnosed with certainty as due to occlusion of the tubes, and the question of abdominal section can be discussed as the only possible—and very dubious—remedy.

In a number of cases the pressure rises to 160 mm. and then suddenly falls to 120, gas passes into the peritoneal cavity, and the patency of one tube at any rate is restored. It may be possible to feel an elastic swelling on one side, which is the still obstructed tube partly distended with gas. This procedure is really curative in certain cases. A relative of mine consulted Professor Blair Bell for sterility following one parturition. Gas was passed at 170 mm. and again ten days later at 130. She became pregnant within fourteen days, though this had not occurred for four years previously. I have had a similar experience in my own practice, and one has occurred at the Royal Infirmary.

On the question of operation for complete obstruction of both tubes I am very dubious. I have now performed salpingostomy on over twenty occasions, and only one pregnancy has resulted ; and that in a case where there were only a few adhesions binding the tip of the tube to the appendix. I have found that, if no pain at all is caused by 200 mm. pressure, the tube is obliterated at the uterine end, and I regard this as almost hopeless. If, however, discomfort is caused, I think that it indicates that some portion of the lumen of one tube at least is patent, for the thin tube stretches and causes pain much more easily than the firm, thick-walled uterus. In two of my Infirmary patients—

who suffered no discomfort from the 200 mm. pressure —a most interesting condition was found, which appeared to be a congenital absence of the lumen of both tubes. There was a thin fibrous cord within the peritoneal covering, and the pathological report stated that no signs of a lumen were present. In these two cases, at their urgent request, Tuffier's operation, of implanting the ovary into the uterine cavity, was carried out; but I told them the results were very uncertain, and so far (twelve months) no pregnancy has resulted, though the patients have suffered no discomfort. In those cases, where the gas passes freely at 120 mm. and the uterus is "cochleate" and ill developed, I dilate up to Hegar 14, and five of these patients have conceived, one unfortunately developing an ovarian pregnancy.

SUMMARY.

(1) The chief essential in the treatment of sterility is an accurate diagnosis of the cause, not forgetting the husband.

(2) Anatomical defects and gross pathological lesions having been excluded, the most likely causes are endocrine upset, and mild pelvic peritonitis causing obliteration or kinks in the tubes.

(3) Thyroid gland in *large* doses is efficient in the endocrine cases.

(4) A test of the patency of the tubes should always be made before operative procedures are advised; otherwise many cases will be submitted fruitlessly to dilating and similar operations, involving the patient in loss of time and money, and discrediting the operator.

REFERENCE.

[1] Impey, *Trans. Edinburgh Obstet. Society*, 1921–1922.

Reviews of Books.

Handbook for Queen's Nurses. Pp. 78. London: The Scientific Press Ltd. 1924. Price 1s. 6d.—This handbook, which comes out with a preface written by Miss Peterkin, the well-known General Superintendent of the Queen Victoria's Jubilee Institute for Nurses, needs no further recommendation. A successful Queen's Nurse ought to be well informed on a very wide range of subjects, and this little handbook provides information on useful points concerning public health in all its branches, as well as many useful hints and methods of nursing the sick poor in their own homes.

Advice to the Expectant Mother on the Care of her Health. By F. J. Browne, M.D., D.Sc., F.R.C.S. Pp. 40. Paper covers. Edinburgh: E. & S. Livingstone. 1926. Price 6d. —While Assistant Physician in charge of the Antenatal Department of the Edinburgh Royal Maternity and Simpson Memorial Hospital, where the late Dr. Ballantyne initiated his pioneer work for the welfare of the expectant mother, the author has had exceptional opportunities for obtaining a practical knowledge of the supervision of pregnant women. This useful little book is the outcome of his experience in dealing with this class of patient. It is concise, practical, and up to date, though some pediatricians may disagree with his method of giving alternate breasts in four-hourly feeds. Without being an alarmist he lays due stress on the grave dangers incurred by neglecting the early signs of disease in pregnancy and parturition, and the importance of routine examinations in every case. This book can, with advantage, be placed in the hands of all expectant mothers irrespective of their class.

Employment for the Tuberculous, Notes, etc., on Finding. By W. Bolton Tomson, M.D. Pp. 27. Paper covers. Three figures. London: Baillière, Tindall & Cox. 1926. Price 1s. —This unassuming but excellent little volume is issued at a most opportune time. The necessity of finding suitable employment for tuberculous patients is becoming increasingly obvious, and the success of the Papworth Colony in Cambridgeshire has shown what can be done, given enthusiasm, unlimited or almost unlimited capital, and quite exceptional business

ability. The Ministry of Health has encouraged the formation of Tuberculosis Care Committees in all areas, whose main function is the provision of suitable employment for patients after satisfactory sanatorium treatment. In addition, the Joint Tuberculosis Council has recently issued its report of a survey of the numerous schemes at present in existence. Dr. Tomson properly lays considerable stress on several points which, although well known to all workers in tuberculosis, are frequently ignored by ignorant but well-meaning amateurs. The first and most important of these is that no scheme can ever be entirely self-supporting. Even the most successful must be subsidised. The second fact is that the tuberculous patient must work with others similarly affected, or he must be his own master. It is essential that he be at liberty to work when he can and rest when he ought, and any work that is found for him must conform to this condition. In the later chapters Dr. Tomson describes in detail what has been done in Hastings for a number of patients. He shows that it is impossible to deal with these patients in a mass, and that each case requires individual care and assistance. One particularly interesting chapter describes a successful attempt to find suitable employment for tuberculous women. This part of the book is of special value, as Dr. Tomson gives exact details of all that was done, including the cost—a most important point. Altogether, a most interesting and instructive little book, the careful study of which both by medical and lay members will add to the efficiency of any After-Care Committee.

Functional Nervous Diseases. By PAUL BOUSFIELD, M.R.C.S. Pp. 212. London: Wm. Heinemann Ltd. 1926. Price 6s.—This book presents within a small compass modern views on the nature and classification of functional nervous disorders. Part I. is devoted to a simple and useful exposition of dynamic psychology, avoiding the use of technical language, which frequently renders such books unreadable to the general reader. The concept of mental tension is well and simply propounded. Part II., which deals with the scope and methods of treatment, is good. It should be studied by those who vaguely imagine that the whole of modern psychotherapy is synonymous with psychoanalysis, for which they entertain a profound and prejudiced dislike. In Part III. of the book the author attempts to classify functional nervous disorders. The effect is not entirely successful. The distinction he draws between the psychoneuroses and the actual neuroses is by no means clear. His subdivision of types of hysteria is not very

convincing, though pragmatically it may be useful. The author rightly emphasises the confusion that exists at the present time with regard to the term neurasthenia, pointing out that true neurasthenia is a rare condition. The name has become a dumping ground into which most of the little understood neuroses are piled. The book closes with a chapter on what he calls the organopsychic diseases, *e.g.* asthma and certain functional disorders of the intestines, which latter certainly need to be considered in their psychological aspects. The book is easy reading, and is certainly to be recommended.

X-ray Diagnosis. By J. MAGNUS REDDING, F.R.C.S. Pp. 227. 80 plates. London: Cassell & Co. Ltd. 1926. Price 21s.—This book is incorrectly described as "A Manual." It is really a Treatise, and a very good one, the type of detailed and careful work which we have long awaited from an English publisher. The author covers every branch of diagnostic radiography, closely correlating the clinical, anatomical, and skiagraphic findings, both normal and abnormal, but he wisely omits questions of technique except where necessary to the understanding of the methods employed. So good is the majority of the reading matter, that it throws into relief the poor quality of the illustrations, which in some cases, so far from being helpful, are a definite hindrance, and not worthy of the book at all. In spite of this, the volume is probably as valuable a general book of reference as is to be found in the English language at the present time. With really good illustrations, it would become a "standard work" on the subject.

Chronic Rheumatic Diseases. By F. G. THOMSON, M.D., M.R.C.P., and R. G. GORDON, M.D., M.R.C.P. Pp. 202. Oxford University Press. 1926. Price 8s. 6d.—This book epitomises very exhaustively our present-day knowledge of the so-called chronic rheumatic diseases, and demonstrates the fact that great progress has been made in their classification. Fibrositis has now become a definite clinical entity, but the condition called by the authors periarticular fibrositis will not, we think, be readily recognised by most medical men. The term rheumatoid arthritis is altogether abolished, to be replaced by *focal arthritis*, which includes also the gonococcal infection of joints. A sharp line of distinction is drawn between focal arthritis and osteo-arthritis, and included in the latter are *malum coxæ senilis* and the various forms of Charcot's joints.

Climacteric arthritis, which differs from many of the foregoing conditions, is described as a distinct disease. One of the most valuable parts of the book is that which deals with the common mistakes in diagnosis arising from such conditions as static deformities, new growths, diseases of the nervous system and the referred pains due to diseases of the viscera. Differential diagnosis of these conditions is entered into most clearly and fully; some fifty pages are devoted to the principles of treatment, and it is noteworthy that drug treatment is dismissed in the short space of about two pages, the remainder being devoted to hydrology, physiotherapy, orthopædic and climatic treatment. The value of vaccines and of protein shock in the treatment of chronic rheumatic states is thoughtfully discussed, and the conclusion is arrived at that their value has been much exaggerated.

Your Hair and Your Health. By OSCAR L. LEVIN, M.D. Pp. ix., 163. London: Wm. Heinemann Ltd. 1926. Price 6s. net.—This is a practical book, in which Dr. Levin describes in the simplest and clearest manner the important part that the health of the body plays in the health of the hair. Apart from the constitutional diseases, the greatest enemies of hair growth are the local infections, so that a clean scalp is one of the best safeguards against loss of hair. The author quite rightly points out the absurdity of following barbers as the sole guides, when the only way to keep the hair is to keep the body healthy. He points out the advantages of bobbed hair, but at the same time warns its admirers that it is likely to be neglected, since its care is relatively easy. The book is full of interest, it is clearly printed and the few diagrams shown are good.

Atlas of the History of Medicine. Part I.: Anatomy. By Dr. J. G. DE LINT. London: H. K. Lewis & Co. 1926. Price 15s.—We have here 199 beautiful plates of ancient dissecting scenes, portraits of great anatomists and anatomical subjects, from Babylonian times down to the present day. With each plate is given a description of the scene or preparation or a short life of the anatomist shown in it, so that a complete survey of the growth of the science is placed before us in pictorial form. This collection of plates is quite unique. Nothing approaching it in richness exists elsewhere. The series gives not merely the story of how anatomy was gradually built up in the past, but also throws light on its new growth at the present time. As Dr. de Lint says, it is becoming the study of

development, of the evolution, growth and relations of the various tissues and organs. Hence the portraits of the early microscopists, of Darwin, Huxley, Johannes Muller, and de Vries, emphasises this recent aspect of the science. The mediæval section is enriched with many of the recent discoveries of Sudhoff and Charles Singer. We could have wished for more of Leonardo da Vinci's drawings from the Windsor Castle collection. English anatomists indeed are well represented, considering that it is an international collection, and we are grateful for the large number of rare portraits of Dutch anatomists and the account of their work. The book is beautifully printed and issued in a convenient form.

The Surgery of Gastro-Duodenal Ulceration. By C. A. PANNETT, B.Sc., M.D., F.R.C.S. Pp. x., 154. Oxford Medical Publications. 1926. Price 10s. 6d. net.—This book of 152 pages gives a very good, modern, practical account of its subject, and can be cordially recommended. The references to the literature are frequent and discriminating, and the note of personal experience is very profitable. For the most part the conclusions drawn and the advice given are orthodox enough. The author gives point to his salutary warning that the surgeon ought not to intervene till the physician has had a chance, by relating cases in which operation was done too soon, the ulcer was too soft to be discovered, and another laparotomy was necessary later. He advocates brandy instead of tea and toast for the test meal. For gastric ulcer he advises sleeve resection in mid-gastric cases, and Billroth's (which he calls Péan's) operation for ulcers near the pylorus. For duodenal ulcers he performs a duodenectomy of the first part of the duodenum, and gives the technique. We do not think he has made out a conclusive case for this procedure. An interesting experience is related in which he operated within an hour or so for a perforated gastric ulcer still in shock, with a fatal result ; he believes that it would have been wiser to wait a little while for shock to moderate. He advises immediate operation for big hæmatemesis due to chronic ulcer, with a view to finding and ligating the bleeding point, using a blood-transfusion if necessary. Here, again, we are not convinced.

The Inflammatory and Toxic Diseases of Bone. By R. LAWFORD KNAGGS, F.R.C.S. Pp. xii., 416. 197 figures. Bristol : J. Wright & Sons, Ltd. Price 20s.—The author has spent his leisure time after retirement from active practice in the preparation and writing of this book. A large part of his work

consisted in studying the specimens in museums and having microscopic preparations made of these. Therefore what ample time and painstaking care can do towards making a book good has been done. Included in the book is a description of different varieties of osteomyelitis, tuberculous and syphilitic disease, Charcot's joints, syringomyelia, yaws, osteo-arthritis, rickets, scurvy, osteitis fibrosa, osteomalacia, osteitis deformans, leontiasis ossea and osteogenesis imperfecta. The work is chiefly that of a morbid anatomist, the clinical aspect being much less completely dealt with, whilst treatment is referred to least of all. The subjects chosen for illustration and the character of the drawings are excellent, and the pictures alone make the book an invaluable work of reference for all those interested in the subject. Every section has a wealth of very good microphotographs, and these add greatly to the interest of the book. That the letterpress is not always as interesting as the pictures is perhaps the fault of the subject and not of the author. We cannot help regretting that a work of this kind could not have been written in conjunction with a clinical surgeon, who would have provided sections on X-ray diagnosis and on treatment, so as to present a more complete account of this difficult subject.

Dental Materia Medica. (Outlines of Dental Science, Vol. III.). By P. H. MARSDEN, M.Sc., Ph.C., F.C.S. Pp. 155. Edinburgh: E. and S. Livingstone. 1926. Price 7s. 6d.—This little volume is a very welcome addition to the various books now dealing with this subject. Without in any way attempting to bring forward a large text-book full of detail, the author has composed a book which should prove of considerable assistance to medical men, and perhaps more particularly to the dental specialist. The type matter is clearly written, and the chapters dealing with the different classes of drugs well arranged. With the minimum of difficulty one is enabled to find out the essentials of any drug mentioned, the book including as it does most of those in use. The author has skilfully included throughout the subject matter some helpful prescriptions. The dental student is somewhat apt to neglect the subject of drugs with their actions and uses. His training, tending to specialise on the mechanical side of his work, is inclined to make him think that materia medica is of very little concern to him. If he wishes to know much about the drugs he may be using he is forced to work through cumbersome text-books with much that is irrelevant to his special study of the oral cavity. This little book should prove of real assistance,

the chapters devoted to prescription writing, mouth washes and tooth pastes being especially helpful.

Handbook of Midwifery and Gynæcology. By W. F. THEODORE HAULTAIN, O.B.E., M.C., F.R.C.S. Pp. viii., 316. 36 figures. London: Faber and Gwyer Ltd. 1926. Price 10s. 6d.—The author has set himself the task of compressing the whole of Midwifery and Gynæcology, including operative technique, into a small volume of some 300 pages. He has undoubtedly been highly successful. The whole subject-matter has been covered efficiently and is thoroughly up to date, and no important detail is missing. This success has only been obtained by the cutting out of every unnecessary word, so that the result is a book of undoubted value for an intensive revision course; but as the author remarks in his preface, it can in no way replace the fuller text books as the routine method of study in these subjects.

Dental Anæsthesia. (Outlines of Dental Science, Vol. I.) By G. F. RAWDON SMITH, M.D. Pp. 160. Illustrated. Edinburgh: E. and S. Livingstone. 1926. Price 7s. 6d.—The object of this small book is to furnish the dental student with a guide to the practice of anæsthesia as applied to his branch of the profession. It is founded on lectures delivered to dental students at the Liverpool University, and, in its 150 pages, it covers a considerably wider field than might have been considered necessary in a practical manual of this nature. For example, some of the theories as to the mode in which general anæsthetics act are included, and a short chapter is devoted to the chemical properties and method of administering chloroform. Either of these subjects seems to appear far too simple when dismissed so briefly, and, in the case of chloroform, one feels that a false sense of security may thus be imparted. The sections dealing with nitrous oxide, ethyl chloride, and ether are well written and contain those data which are most essential for successful administration. We consider that the chapter dealing with local and regional analgesia would be enhanced in value by the addition of more detail and some illustrations defining the sites of puncture. The book supplies an obvious want and should become very popular.

Diseases of the Nose and Throat. Third edition. By Sir ST. CLAIR THOMSON, F.R.C.P. Pp. xvi., 943. Illustrated. London: Cassell and Co. Ltd. 1926. Price £2 5s.—The scheme of this well-known text-book remains essentially the

same as in the original edition. While a good deal has been omitted as being out of date, many new sections have been introduced and others extended to include recent additions to our knowledge. The section on local anæsthesia would have been valuable if the author had afforded the result of his long personal experience. The mention of borocaines with cocaine instead of among the substitutes is rather confusing. Sir St. Clair Thomson has been singularly successful in preserving balance and proportion throughout the volume, a task of very great difficulty when covering such an immense territory. As heretofore, his work will prove a reliable guide to diseases of the nose and throat for student and practitioner, while his colleagues in the speciality will appreciate this clear exposition by one who has attained world-wide eminence in this branch of medicine. We cannot close our notice without according praise to the splendid series of illustrations, to the excellent printing and production of the volume, and to the author's painstaking endeavour to render the work accurate and complete.

Editorial Notes.

Death of Sir Isambard Owen.

THE death of Sir Isambard Owen, formerly Vice-Chancellor of the University of Bristol, deprives the academic world of a notable authority. It was no common achievement to have spent a considerable part of a long life as a physician in London and then made such a mark in University administration. The University of Bristol owes more than it as yet realises to Owen's administrative ability and guidance during its infancy. Medicine is, perhaps, no bad training ground for acquiring a knowledge of the handling of human affairs.

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Resignation of Miss E. E. P. MacManus, R.R.C.

WE regret to have to record the resignation of Miss MacManus from the Matronship of the Royal Infirmary, though we offer her our warmest congratulations on her appointment to be Matron of Guy's Hospital.

Miss MacManus came to Bristol in 1923 from Guy's Hospital, where she had held many appointments, including that of Assistant Matron. Her career has been a distinguished one, and her wide experience has rendered her an outstanding personality in the nursing world. Before the war she had nursed in Egypt, both privately and at the Kasr-el-Aini Hospital. Her army work in France had brought her to such close quarters with the Germans, that the Casualty Clearing Station, to which she was attached at Noyon, was at one time believed to have actually been captured during the retreat of the 5th Army in 1918.

Miss MacManus takes with her to Guy's the good wishes of everyone in Bristol who knew her. She maintained an exceptionally high standard of efficiency in nursing at the Royal Infirmary, and won the affection of her nurses in a remarkable degree by her sympathy and consideration.

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Complimentary Dinner to Dr. Lily Baker.

ON February 4th a complimentary dinner was organised by some of her women friends at the Royal Infirmary to Dr. Lily Baker, on the occasion of her appointment to the honorary staff of the Infirmary. The dinner was held at Fortt's and was attended by a hundred guests. Dr. Baker's health was proposed by Lady Barrett, Professor Winifred Cullis and Dr. Letitia Fairfield. Their speeches showed that the art of after-dinner oratory is not neglected by women.

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Fiftieth Anniversary of the Foundation of University College.

The Fiftieth Anniversary of the Foundation of University College, Bristol, was celebrated on December 4th, 1926, by the Association of Alumni. We hope in our next issue to publish an article by Mr. Richardson Cross dealing with the history of the College, and more especially with the various movements which led up to its foundation. Mr. Cross's personal recollections of the early days of University College will have exceptional interest, as he was connected with the College from its start and later formed one of the Committee that obtained the Charter for the University of Bristol.

Meetings of Societies.

Bristol Medico-Chirurgical Society.

December 8th, 1926.

Dr. A. L. Flemming, President, in the Chair.

Mr. D. A. Alexander read a paper entitled **"A Medical Year"** containing an interesting, but necessarily very condensed account of the many types of disease seen by a busy practitioner during that time and the speculations to which some of the cases gave rise.

Dr. J. V. Blachford read a paper on **"the Recommendations of the Royal Commission on Lunacy and Mental Disorder,"** which is published on p. 15.

In the discussion which followed, the President said that the slightness of the proposed changes was good evidence of the value of the present regulations. It had occurred to him to remark that many magistrates seemed to mistake their function, and to attempt to adjudicate on the medical evidence in the certificate, instead of seeing that legal procedure had been properly carried out.

Dr. E. Barton White said that he felt that, since it was inevitable that the law must step in where it was necessary to deprive a patient of his liberty, the provisional treatment order was a farce. The procedure proposed was exactly the same as that in force, except that the name "certification" was avoided. The stigma of the proposed method would be no less than that of the present, and the alteration would tend to crystallise the idea that certification implied disgrace, an idea that alienists had for years been labouring to dispel. As regards the voluntary patient, he felt that there was real risk of abuse under the scheme suggested, and that this risk would have to be met. The cost to institutions and to the public funds would certainly be increased by the new measures, for nearly every case would require to be certified for provisional treatment, many of these subsequently needing a second permanent certificate. The effect of the double procedure would be bad for many of the patients. The only valuable part of the report lay in the recommendation to increase the protection of those who had to deal with the insane.

Dr. J. R. P. Phillips agreed that the commission had failed to produce any useful recommendations. Extension of the

voluntary system to the State-aided class was valuable, but the decision should lie with the family doctor and the medical superintendent concerned; without this the risk of abuse was too great. The proposed provisional order was exactly the same as a certificate. The report pandered to the old idea that sane persons are detained in asylums.

DR. J. A. NIXON confirmed the view of the President that some magistrates had mistaken the function assigned to them. He quoted a conversation with the late Mr. F. A. Inderwick, K.C. who had assisted in drafting the Act of 1890. Mr. Inderwick had said that it was not intended that magistrates should attempt to decide the fact of insanity but should satisfy themselves that the certificates were in legal order and particularly that the certificates referred to the person about to be detained. "Many magistrates," Mr. Inderwick added, "arrogated to themselves the task of trying to decide whether the person was insane or not, and this the drafters of the Act had never supposed they would be foolish enough to attempt.

DR. BLACHFORD in the course of his reply to questions said that courses of instruction in clinics were of little value; the study and treatment of disorder of mind demanded the whole attention of a lifetime.

Bristol and Bath Surgical Club.

THE Autumn Meeting was held at Bath on December 4th, 1926, and was well attended. The programme was arranged by the President, Mr. Mumford, and opened with a clinical meeting at the Royal United Hospital. Two especially interesting specimens were a tumour of the femur, over which opinion was divided, and a retrograde intussusception of efferent jejunum into a gastro-enterostomy. In the tour of the wards we saw a patient apparently cured of epithelioma of the tonsil after diathermy. Mr. Mumford showed a beautiful example of plastic surgery by the use of a pedicle graft from the abdomen to the fore-arm. The treatment of various fractures provoked useful discussion. The Club later repaired to the Children's Hospital, where Miss M. Morris gave an instructive demonstration of methods of treatment of postural and other deformities. Although working with patients new to her, and severely deformed, she seemed to grasp their interest and from the outset to evoke a response.

Obituary.

SIR ISAMBARD OWEN, D.C.L., M.D., F.R.C.P.
(*Vice-Chancellor of the University of Bristol*, 1909–24.)

We regret to have to record the sudden death in Paris, on January 14th, at the age of 76, of Sir Isambard Owen, formerly Vice-Chancellor of the University, and an honorary member of the Medico-Chirurgical Society. Sir Isambard came to Bristol in 1909 with an established reputation in University administration, for he had been Principal of the Armstrong College at Newcastle-on-Tyne, and Senior Deputy Chancellor of the University of Wales. The honour of knighthood, which he received in 1902, was a recognition of his work in and on behalf of the University of Wales.

The University of Bristol owed a great deal to his well-informed guidance in the early days. He was in touch with other Universities, and could voice the needs and views of Bristol at University conferences or with Government departments in such a way as to command attention. His experience as physician and dean to St. George's Hospital, enabled him to help the Faculty of Medicine with wise and sympathetic advice.

The foundation of a new University provided many problems which called for clear judgment and impartiality, both of which gifts Sir Isambard Owen possessed in a marked degree. In drafting statutes, ordinances and regulations, he was most adept, and on ceremonial occasions he proved a veritable master of pageantry. His speeches at public assemblies were admirable alike in style and in delivery.

A sympathetic obituary note in the *British Medical Journal* gave an excellent summary of his character :—

"Isambard Owen was a good friend and a charming companion. Slim and rather frail in appearance, he was

capable of withstanding fatigue, whether physical, in his favourite pastime of cycling, or mental, when completing, under pressure, some of the laborious enquiries he undertook. He formed opinions only after full examination, but then held them tenaciously. His manner was always conciliatory, but opponents of a different temperament were often surprised how trenchant could be his criticisms, uttered in a quiet tone, and often illuminated by a flash of humour."

Among his other interests he numbered Freemasonry, and he attained to high honours in the Province of Bristol as Senior Grand Deacon. He had occupied the chair of St. Vincent Lodge as Worshipful Master in 1919.

Sir Isambard Owen married in 1905, and is survived by Lady Owen and two daughters, to whom we offer our deep sympathy.

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Professor Edward Fawcett (2)	1	,,
Professor E. W. Hey Groves (3)	5	volumes.
Michell Clarke Memorial Fund (4)	13	,,
The Rockefeller Foundation (5)	1	volume.
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Unbound periodicals have also been received from Professor E. W. Hey Groves.

THE ONE HUNDRED AND NINETEENTH LIST OF BOOKS.

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American Journal of Hygiene (Monographic Series), No. 7, October (2) 1926
Annual Report. Rockefeller Foundation .. .. (5) 1925
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Nouveau traité de mèdecine. Vols. I, IV, V, VI, VII, VIII, XI, XII, XIII, XIV, XV, XIX, XXII .. .. (4)
Progressive Medicine. Vol. IV... 1926
Progressive Medicine. Vol. IV... 1926
Report on 3rd Internat. Congress of Military Medicine and Pharmacy (1) 1926
St. Thomas's Hospital Reports. Vol. 48 1926

Local Medical Notes.

Dr. J. A. Nixon has been elected to the Council of the Royal College of Physicians, London.

Dr. Macdonald Critchley has been appointed Registrar at the National Hospital, Queen Square, London.

EXAMINATION RESULTS.

University of Bristol.—Students of the University have recently passed the following examinations :—

M.B., CH.B. (*Part I.—Including Forensic Medicine and Toxicology. Pass :* T. H. Berrill (Distinction in Materia Medica, Pharmacy, Pharmacology and Therapeutics), B. J. Boulton, T. A. Brand, R. M. Norman (Distinction in Materia Medica, Pharmacy, Pharmacology and Therapeutics), E. Southam, T. B. Wansbrough (Distinction in Materia Medica, Pharmacy, Pharmacology and Therapeutics), A. R. Williams. (*Part I. only*). *Pass :* G. D. J. Ball, O. J. P. Bollon, T. L. Cleave, R. D. Jenkins, (Miss) H. B. Murgoci, (Miss) E. M. Redman.

M.B., CH.B. (*Part II.*)—*Completing Examination. Pass :* (Miss) W. P. Brinckman, J. M. Camps-Campin, A. M. Critchley, T. F. Hewer (with Distinction in Pathology), F. W. T. Hughes, R. Jackson (with Distinction in Forensic Medicine and Toxicology), E. R. Wide. *Group I.* (*only*). (Miss) H. M. Aldwinckle.

B.D.S.—*Final Examination. Pass :* E. C. Browne. *Third Examination in Materia Medica* (*Completing Examination*). *Pass :* W. M. Evans.

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Communications referring to the delivery of the *Journal* should be sent to the Editorial Secretary, A. L. Flemming, 48 Pembroke Road, Clifton, Bristol.

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